

**CLAIMS**

What is claimed is:

1. A radar detector having a multi-period periodicity validator, said radar detector comprising:
  - a pulse sensor configured to sense a received pulse;
  - a first-period detector coupled to said pulse sensor and configured to detect a first period;
  - a second-period detector coupled to said pulse sensor and configured to detect a second period, said second period being different from said first period; and
  - a control element, coupled to said first-period detector and to said second-period detector, said control element being configured to determine if a pulse sensed at said pulse sensor exhibited a period matching one of said first and second periods.
2. A radar detector as claimed in claim 1 wherein said first period is either one-half or twice said second period.
3. A radar detector as claimed in claim 1 additionally comprising a third-period detector coupled to said pulse sensor and configured to detect a third period, said third period being different from said first and second periods.
4. A radar detector as claimed in claim 3 wherein:
  - said first period is one-half of said second period; and
  - said third period is twice said second period.
5. A radar detector as claimed in claim 1 additionally comprising a missing-pulse calculator coupled to said first-period

detector, said missing pulse calculator being configured to estimate a number of pulses overlooked by said pulse sensor.

6. A radar detector as claimed in claim 5 wherein:

said control element is configured to indicate detection of a radar after said pulse sensor senses a first predetermined number of received pulses; and

said control element is further configured to refrain from indicating detection of a radar when a second predetermined number of pulses have been estimated as being overlooked.

7. A radar detector as claimed in claim 1 additionally comprising a pulse-train register configured to store a pulse-train record, said pulse-train record being configured to indicate a number of pulses previously received in connection with a train of pulses sensed at said pulse sensor.

8. A radar detector as claimed in claim 7 wherein said first-period and second-period detectors are enabled after said pulse-train record indicates at least two pulses have been previously received in connection with said train of pulses.

9. A radar detector as claimed in claim 7 wherein:

said pulse-train register includes a plurality of pulse-train records;

each of said pulse-train records indicates a pulse width for pulses included in said pulse train; and

a received pulse sensed by said pulse sensor is associated with a pulse train by matching a pulse width of said received pulse with a pulse width indicated in one of said pulse-train records.

10. A radar detector as claimed in claim 7 wherein:

said pulse-train register is configured to store up to a plurality of pulse-train records to simultaneously track a plurality of pulse trains;

said first-period detector, said second-period detector, and said control element are included in a pulse evaluator coupled to said pulse-train register and to said pulse sensor;

said pulse evaluator is configured to clear an existing pulse-train record when said existing pulse-train record tracks a pulse train that cannot serve as a basis for indicating detection of a radar; and

said pulse evaluator is configured to open a new pulse-train record when a received pulse has been sensed that may be the beginning of a pulse train not currently being tracked by a pulse-train record in said pulse-train register.

11. A method for detecting the presence of an active radar signal comprising:

a) establishing an expected period for pulses in a pulse train;

b) sensing a received pulse having timing parameters;

c) determining whether said timing parameters of said received pulse match said expected period; and

d) determining whether said timing parameters of said received pulse match an alternate period, said alternate period being different from said expected period.

12. A method as claimed in claim 11 wherein said alternate period is either one-half or twice said expected period.

13. A method as claimed in claim 11 wherein:  
said alternate period is a first-alternate period;  
said method additionally comprises determining whether said timing parameters of said received pulse match a second-alternate period; and  
said second-alternate period is different from said expected period and said first-alternate period.

14. A method as claimed in claim 13 wherein:  
said first-alternate period is one-half of said expected period; and  
said second-alternate period is twice said expected period.

15. A method as claimed in claim 11 additionally comprising estimating, when said timing parameters of said received pulse match said alternate period, a number of pulses from said pulse train that have been overlooked.

16. A method as claimed in claim 15 additionally comprising:  
indicating detection of said active radar signal when a first predetermined number of received pulses from said pulse train have been sensed; and  
preventing the indication of said active radar signal when a second predetermined number of received pulses have been estimated as being overlooked.

17. A method as claimed in claim 11 wherein:  
said establishing activity a) comprises:  
sensing first and second received pulses, and  
calculating said expected period as being a duration  
between said first and second pulses; and

said sensing activity b) senses a third received pulse.

18. A method as claimed in claim 17 additionally comprising revising said expected period after sensing said third received pulse.

19. A method as claimed in claim 11 wherein said method additionally comprises:

tracking a plurality of pulse trains using a plurality of pulse-train records, wherein each of said plurality of pulse-train records indicates a pulse width for pulses of one of said plurality of pulse-trains; and

associating said received pulse with one of said plurality of pulse trains by comparing a pulse width for said received pulse with said pulse widths indicated in said plurality of pulse-train records.

20. A radar detector having a multi-period periodicity validator, said radar detector comprising:

a pulse sensor configured to sense a received pulse;

a first-period detector coupled to said pulse sensor and configured to detect an expected period;

a second-period detector coupled to said pulse sensor and configured to detect a first-alternate period;

a third-period detector coupled to said pulse sensor and configured to detect a second-alternate period, wherein said first-alternate period is one-half of said expected period, and said second-alternate period is twice said expected period; and

a control element coupled to said first-period detector, said second-period detector, and said third-period detector, said control element being configured to determine if a pulse sensed at said pulse sensor exhibited a period matching one of said expected, first-alternate, or second-alternate periods.

21. A radar detector as claimed in claim 20 wherein:

said control element is configured to indicate detection of an active radar signal after said pulse sensor senses a predetermined number of received pulses exhibiting a combination of said expected, first-alternate, and second-alternate periods.

22. A radar detector as claimed in claim 21 wherein said control element is configured to indicate detection of said active radar signal when pulse widths for each of said predetermined number of received pulses match one another.